

REMARKS

The Final Office Action mailed June 4, 2004, has been received and reviewed. Claims 1 through 4, and 6 through 15 are currently pending in the application. Claims 1 through 4, and 6 through 15 stand rejected. Reconsideration is respectfully requested.

35 U.S.C. § 102 Anticipation Rejections

Anticipation Rejection Based on U.S. Patent No. 5,857,885 to Laou et al.

Claims 1 through 3 and 8 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Laou et al. (U.S. Patent No. 5,857,885). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Laou discloses a method of etching silicon with a wet chemical etchant of a mixture of nitric acid, acetic acid and hydrofluoric acid. (Laou, col. 4, lines 48-56). By way of contrast, claim 1 of the presently claimed invention recites "an etchant solution which selectively etches borophosphosilicate glass over tetraethyl orthosilicate, the etchant solution consisting essentially of an organic acid and a fluoride-containing solution provided in a selected volumetric ratio relative to one another, wherein the selected volumetric ratio of the organic acid to the fluoride-containing solution is about 10:1 to about 500:1." Nitric acid is known etchant of nitrides. (Shuichi, Japanese abstract 59003762). A copy of the Japanese abstract is provided herewith. Thus, inclusion of nitric acid in the presently claimed composition would materially change the characteristics of the etchant solution. As the etchant in Laou includes additional components (nitric acid) which materially affect the composition, Laou fails to anticipate every element of the presently claimed invention. Accordingly, claim 1 of the presently claimed invention is not anticipated by Laou. Thus, claim 1 is allowable.

Claims 2, 3 and 8 are each allowable as depending, either directly or indirectly, from allowable claim 1.

Anticipation Rejection Based on U.S. Patent No. 4,230,522 to Martin et al.

Claims 1 through 4, 6 and 7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Martin et al. (U.S. Patent No. 4,230,522). Applicants respectfully traverse this rejection, as hereinafter set forth.

Martin discloses a method of etching silicon and aluminum with a wet chemical etchant of a mixture of orthophosphoric acid, nitric acid, acetic acid and a tetrafluoroborate anion containing compound. (Martin, col. 2, lines 40-45). By way of contrast, claim 1 of the presently claimed invention recites “an etchant solution which selectively etches borophosphosilicate glass over tetraethyl orthosilicate, the etchant solution consisting essentially of an organic acid and a fluoride-containing solution provided in a selected volumetric ratio relative to one another, wherein the selected volumetric ratio of the organic acid to the fluoride-containing solution is about 10:1 to about 500:1.” As stated, nitric acid is known etchant of nitrides. (Shuichi, Japanese abstract 59003762). Phosphoric acid is also an etchant of nitrides. (U.S. Patent 5,643,819, col. 7, lines 65-67). A copy of U.S. Patent 5,643,819 is provided herewith. Further, Martin discloses that the phosphoric acid and acetic acid together act as diluting agents and levelling agents for reducing the reactive power of the fluoride containing constituent. (Martin, col. 3, lines 36-40). Thus, inclusion of nitric acid and/or orthophosphoric acid in the presently claimed composition would materially change the characteristics of the etchant solution. As the etchant in Martin includes additional components (orthophosphoric acid and nitric acid) which would materially affect the composition, Martin fails to anticipate every element of the presently claimed invention. Accordingly, claim 1 of the presently claimed invention is not anticipated by Martin. Thus, claim 1 is allowable.

Claims 4, 6 and 7 are each allowable as depending, either directly or indirectly, from allowable claim 1.

Anticipation Rejection Based on U.S. Patent No. 5,857,885 to Laou et al.

Claims 9 through 11 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Laou et al. (U.S. Patent No. 5,857,885). Applicants respectfully traverse this rejection, as hereinafter set forth.

Laou discloses a method of etching silicon with a wet chemical etchant of a mixture of nitric acid, acetic acid and hydrofluoric acid. (Laou, col. 4, lines 48-56). By way of contrast, claim 9 of the presently claimed invention recites an “etchant solution which selectively etches borophosphosilicate glass over tetraethyl orthosilicate, the etchant solution consisting essentially of an organic acid and a fluoride-containing solution, wherein the etchant solution exhibits a selectivity ratio of borophosphosilicate glass to tetraethyl orthosilicate between about 27:1 and 55:1.” As stated, nitric acid is a known etchant of nitrides. As the etchant in Laou includes additional components (nitric acid) which materially affect the composition, Laou fails to anticipate every element of the presently claimed invention. Accordingly, claim 9 of the presently claimed invention is not anticipated by Laou. Thus, claim 9 is allowable.

Claims 10 and 11 are both allowable as depending from allowable claim 9.

Anticipation Rejection Based on U.S. Patent No. 4,230,522 to Martin et al.

Claims 9 through 15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Martin et al. (U.S. Patent No. 4,230,522). Applicants respectfully traverse this rejection, as hereinafter set forth.

Martin discloses a method of etching silicon and aluminum with a wet chemical etchant of a mixture of orthophosphoric acid, nitric acid, acetic acid and a tetrafluoroborate anion containing compound. (Martin, col. 2, lines 40-45). By way of contrast, claim 9 of the presently claimed invention recites an “etchant solution which selectively etches borophosphosilicate glass over tetraethyl orthosilicate, the etchant solution consisting essentially of an organic acid and a fluoride-containing solution, wherein the etchant solution exhibits a selectivity ratio of borophosphosilicate glass to tetraethyl orthosilicate between about 27:1 and 55:1.” As stated, phosphoric acid and nitric acid will both etch nitrides. As the etchant in Martin includes

additional components (orthophosphoric acid and nitric acid) which materially affect the composition, Martin fails to anticipate every element of the presently claimed invention. Accordingly, claim 9 of the presently claimed invention is not anticipated by Martin. Thus, claim 9 is allowable.

Claims 10 through 15 are each allowable as depending, either directly or indirectly, from allowable claim 9.

CONCLUSION

Claims 1-4 and 6-15 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



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